

# The art of science communication: using PowerPoint effectively

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Integration and Application Network

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Science Communication Course

Charleston, SC

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University of Maryland  
CENTER FOR ENVIRONMENTAL SCIENCE



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# Outline

- Preparing your presentation
  - Communicating your message effectively
- Preparing good quality slides
  - Pitfalls
  - Hints and tips to maximize usefulness
- Presenting your talk

Preparing a presentation

- Write your conclusion / summary slide first
- Keep to about 5 key points
- Tell'em, Tell'em, Tell'em
- Develop an overall theme/story for the presentation
- Keep it simple stupid
- Stick to time limit: approx. 1 slide per available minute




More than knowing how to use the software

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Combine visual elements

Patuxent River is responsive to increased flow (nutrient loading) with phytoplankton blooms



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Presenting your talk

- Preparation is essential
- Arrive early to check equipment and greet audience
- Provide appropriate background
- Thoughtful transitions between points keeps your audience focused on your theme
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  - Explain graph axes, photos, diagrams
- Be enthusiastic, but poor yourself
- Measure your audience and situation and respond if necessary





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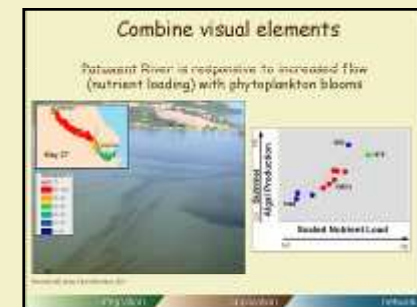
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### Presenting your talk

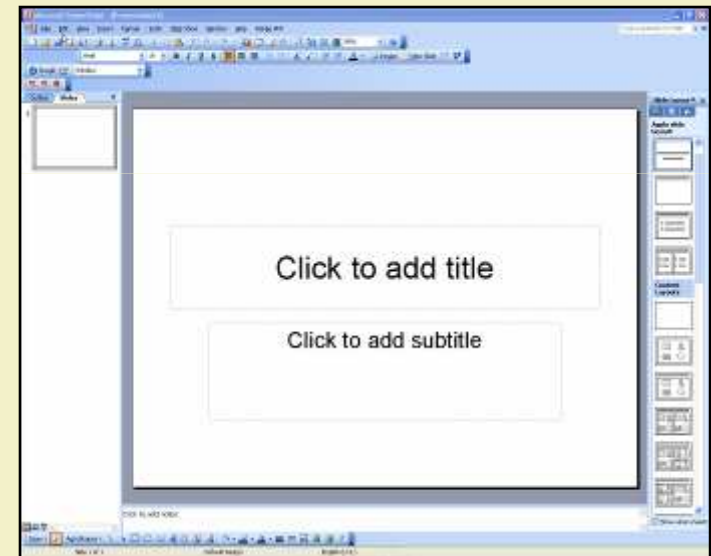
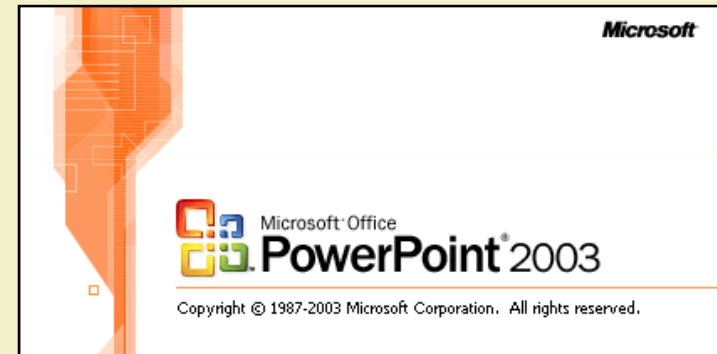
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# Preparing a presentation

- Write your conclusion / summary slide first
- Keep to about 5 key points
- Develop an overall theme/story
- Stick to time limit: approx. 1 slide per available minute
- Get to the point (e.g. show data within 5 minutes)




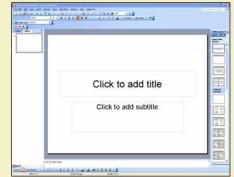
*More than knowing the software*

# Preparing a presentation

- Tell'em, Tell'em, Tell'em
- Keep it simple stupid
- Avoid jargon or acronyms
- Target your audience
- Prepare good quality slides

Preparing a presentation

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*Every slide should have visual elements*

# Designing a good scientific presentation

- Title slide – title, authors, affiliations, date



*Visual elements can introduce yourself & the topic*

- Outline of talk – explain organization & preview conclusions

**Outline**

- Report cards = important management tool
- 2003 pilot study of Patuxent and Choptank Rivers
- Ecosystem health index approach can be used
- Additional indicators need to be considered
- Effective monitoring programs can be developed (e.g. Moreton Bay)

Region	Score
Upper Patuxent	0.21
Middle Patuxent	0.52
Lower Patuxent	0.48
Mouth Patuxent	0.58
Patuxent Overall	0.48

At the bottom of the slide, there are three colored bars labeled 'integration', 'application', and 'network'.

*A guide to the talk and can provide conclusions*

integration

application

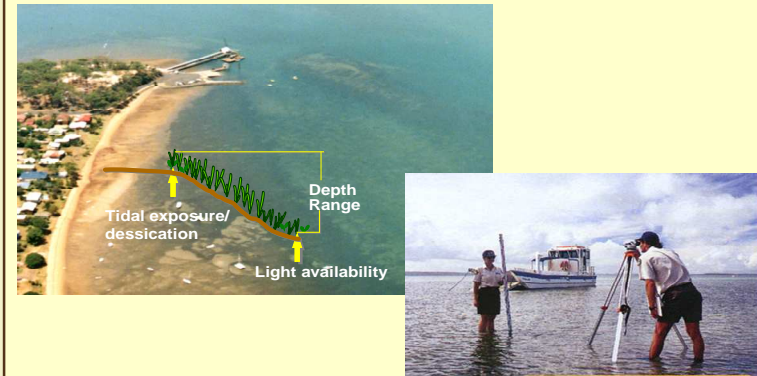
network

# Designing a good scientific presentation

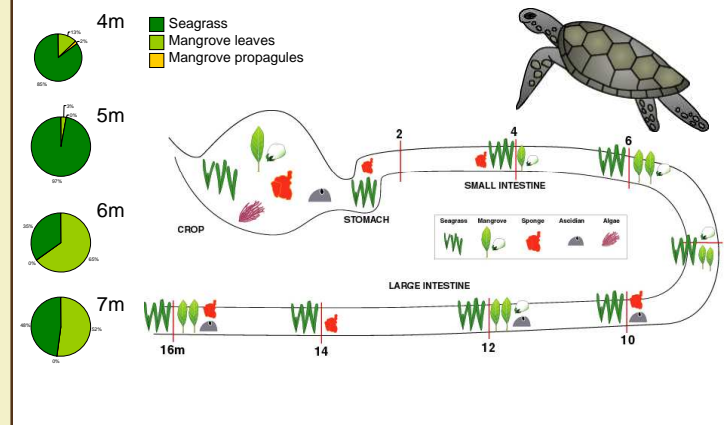
Body of talk:

Methods

## Seagrass depth range monitoring



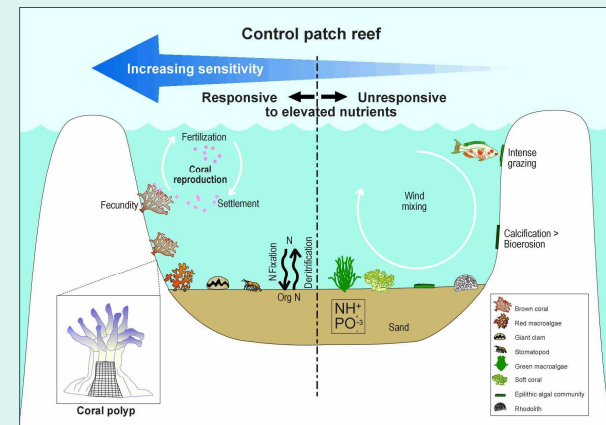
## Distribution of plant material along the turtle digestive tract



Results

## Coral reef responses to added nutrients

Some, but not all, coral reef organisms and processes affected by elevated nutrients



Data summary

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# Designing a good scientific presentation

- Conclusions – take-home messages, stimulate questions

## Conclusions

- *Thalassia* as an effective bio-indicator for the Caribbean
- Use of  $\delta^{15}\text{N}$  clarified anthropogenic influences to both high and low rainfall Caribbean systems
- A dry Caribbean Lagoon, Yucatan shows high sewage nitrogen inputs and high phosphorus inputs from submarine vents
- A wet Caribbean Lagoon, Bocas del Toro shows high total nitrogen and phosphorus inputs from watershed sources

- Acknowledgements – specify roles

## Acknowledgements

- Chesapeake Bay Program for making aquatic grasses a priority since 1976
- Funding agencies for **aerial survey**: EPA, NOAA, VA DEQ and CRM, MD DNR, USACE
- Funding agencies for **aquatic grass restoration**: NOAA (NMFS, CZM and Sea Grant), KCF, VMRC, DoD (USACE, Legacy, USAEC, APG), EPA, NFWF, CBT, CBF, NAIB, MPA, USGS, MD DNR, VIMS, Hopewell WWTP



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Patuxent River is responsive to increased flow (nutrient loading) with phytoplankton blooms



May 27

Phytoplankton Production

Basal Nutrient Load

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Presenting your talk

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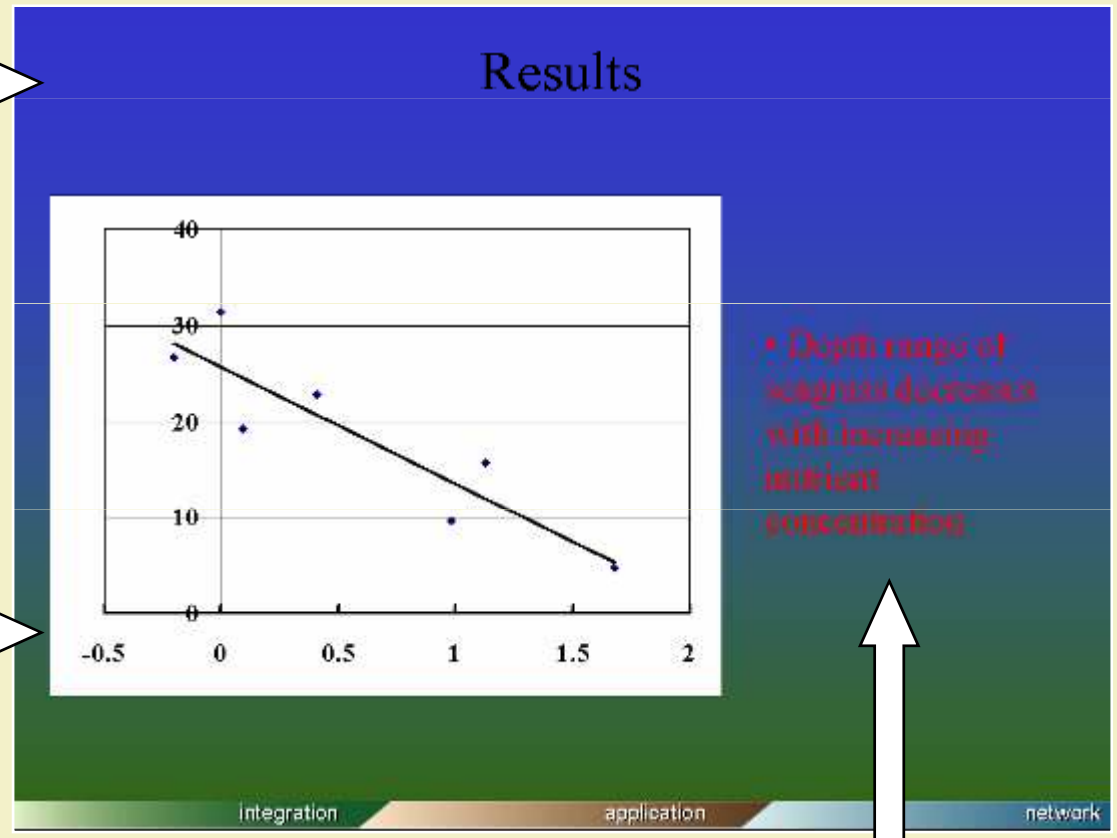
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# PowerPoint presentations can be poorly organized

Boring title gives no clue to slide contents

Bad font and color choice

Poorly formatted graph



Text box with poor left alignment; bad font and color

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# Overuse of PowerPoint effects is distracting

Effects

become

Focus should be on the content,  
not on the presentation

annoying

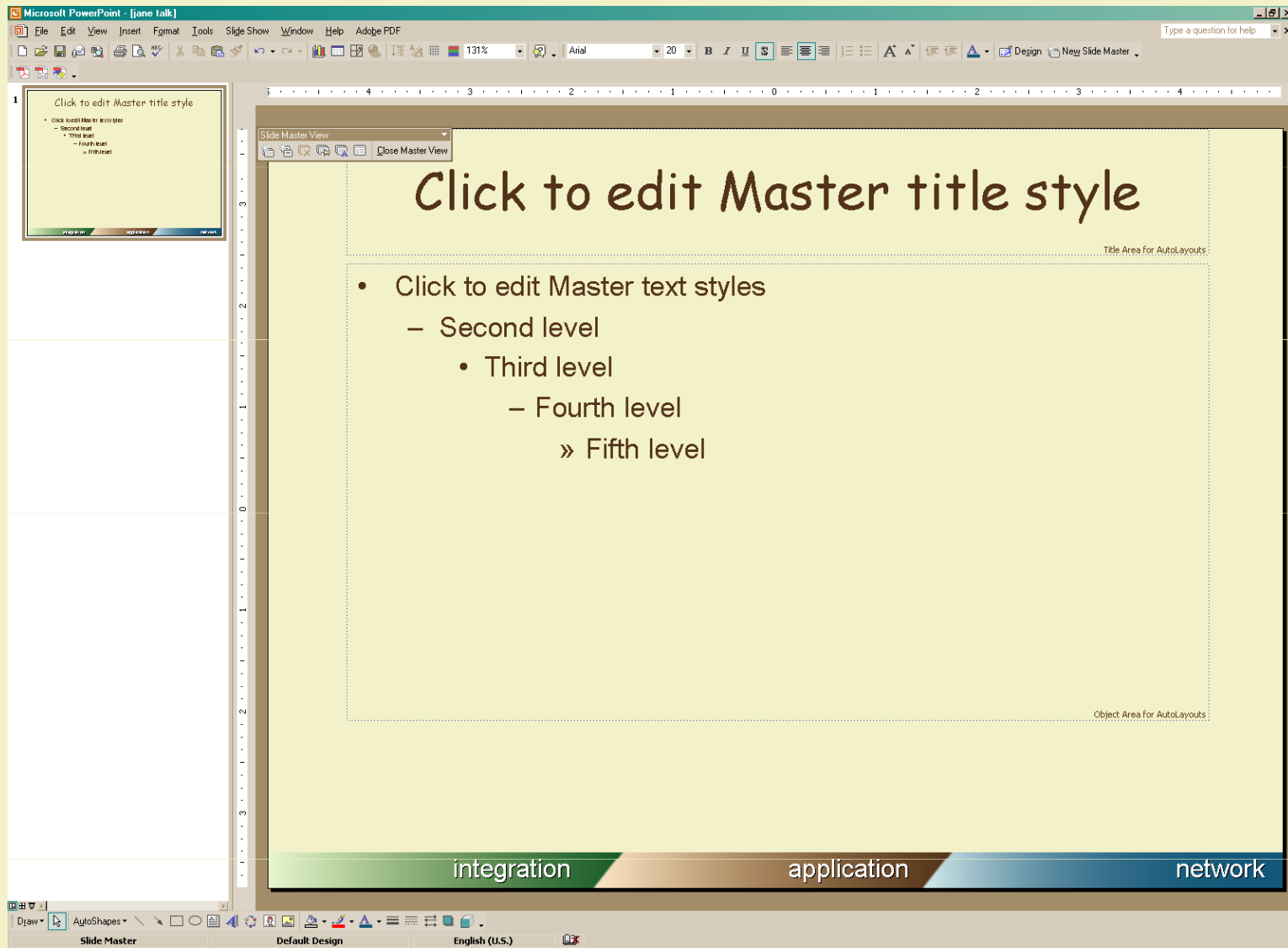
# The Slide Master provides consistency



The screenshot shows the Microsoft PowerPoint interface in Slide Master view. The main slide area displays the title "The art of science communication: using PowerPoint effectively" in a large, dark blue font. Below the title is the name "Ben Fertig" and the logo for the University of Maryland Center for Environmental Science. The URL "http://ian.umces.edu" is displayed in the bottom right corner. The left sidebar shows the Slide Master menu with options like Normal, Slide Sorter, Slide Show, Notes Page, Master, Color/Grayscale, Task Pane, Toolbars, Ruler, Grid and Guides, Header and Footer, Markup, and Zoom. The bottom status bar indicates "Slide 1 of 47", "Default Design", and "English (U.S.)".



# The Slide Master provides consistency



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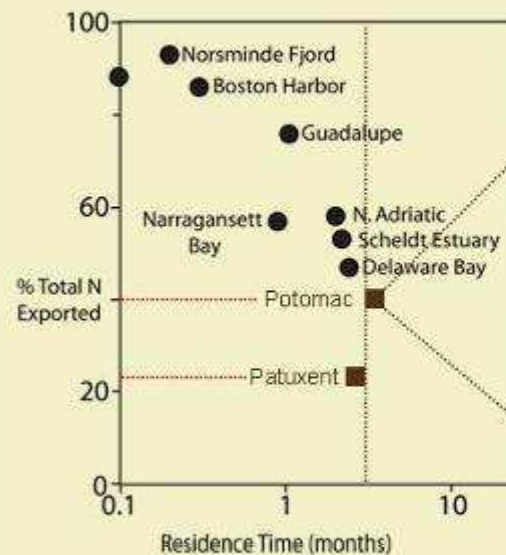
# PowerPoint presentations can be well organized

Active title sets the scene  
Good color and font choice

Data is well formatted and legible

Consistent look maintained

Chesapeake tributaries have similar residence time but a large difference in % N exported



Potomac: urban shoreline

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Photo aligned properly and labeled

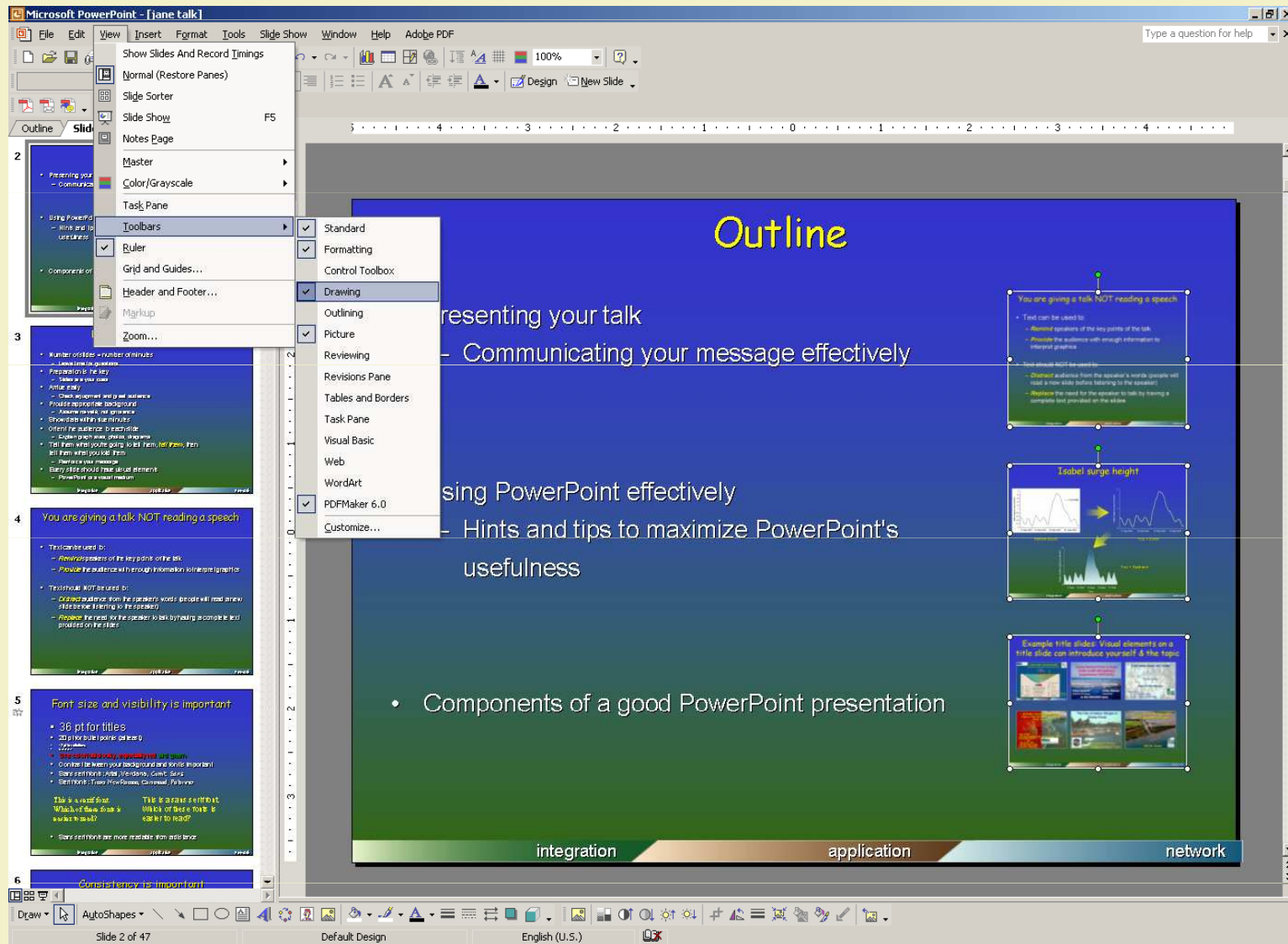
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# Use PowerPoint's *Align* or *Distribute* function

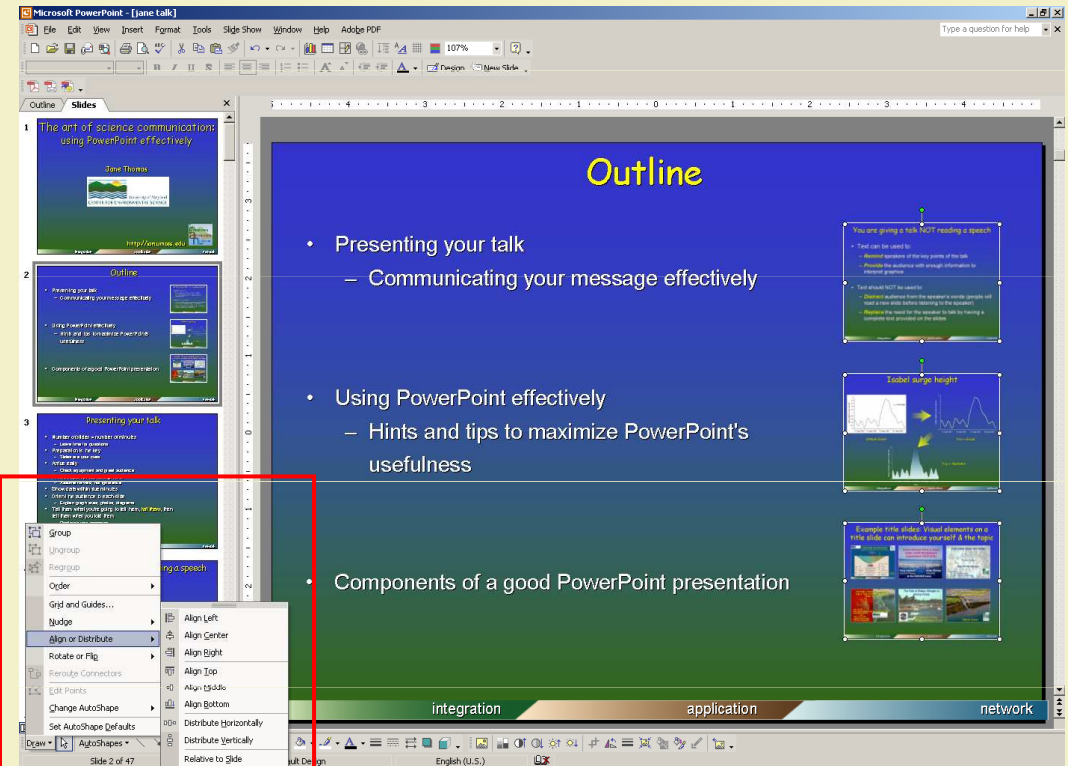
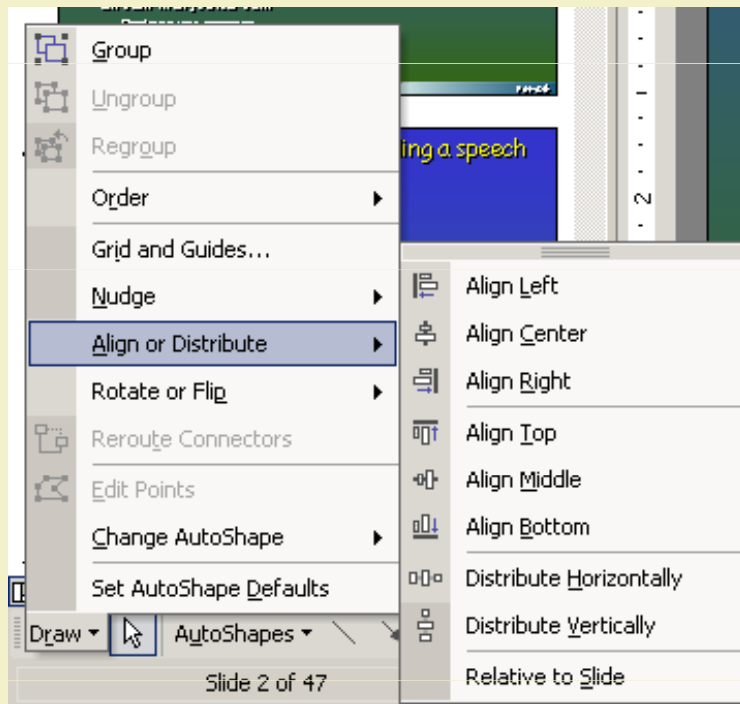


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# Use PowerPoint's *Align or Distribute* function

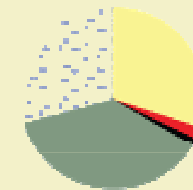
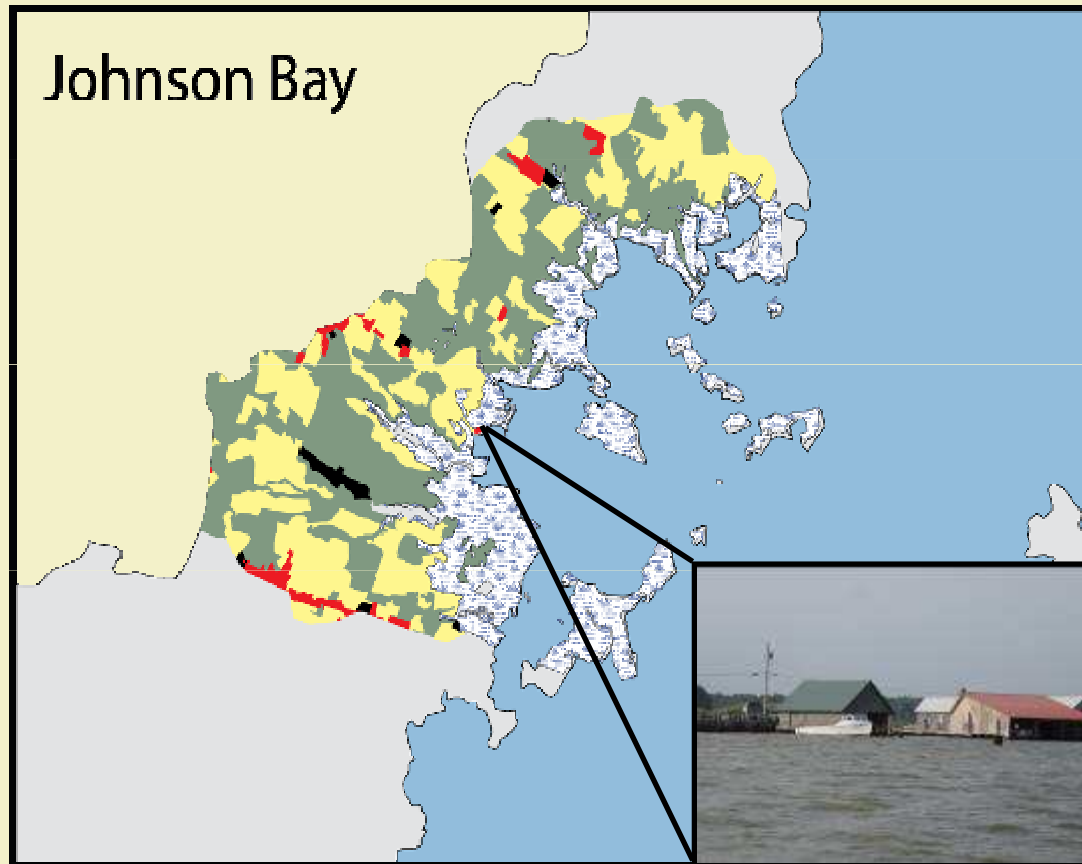


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# Combine visual elements to provide context



Johnson Bay

Water area      2,413 acres (5,023 ha)

Watershed area      2,136 acres (4,911 ha)



- Feeding operations situated close to streams

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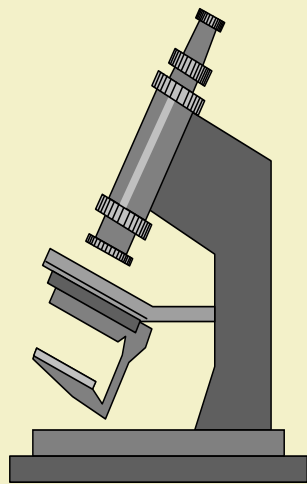
application

network

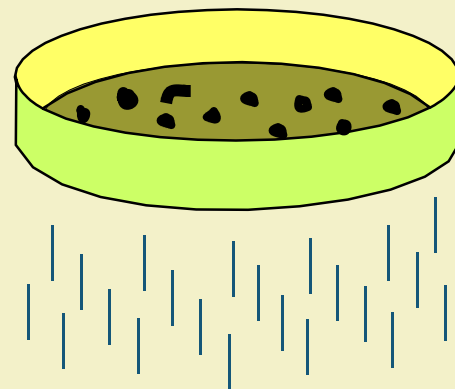
# Effective use of animation to show steps in methodology

Slow release fertilizer  
(88 g N m<sup>-2</sup> : 22 g P m<sup>-2</sup>)

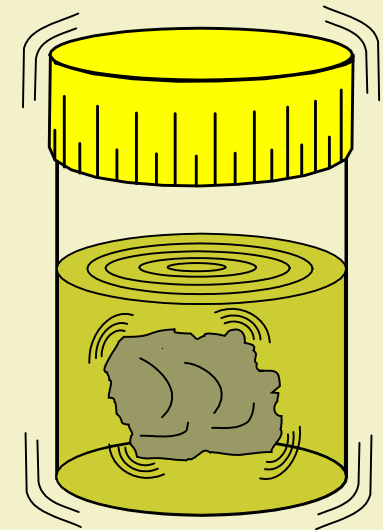
Dinoflagellates are  
classified, counted  
and recorded



20µm size fraction collected



Dinoflagellates are  
washed from the  
surface of the host



Incubate for  
10 days



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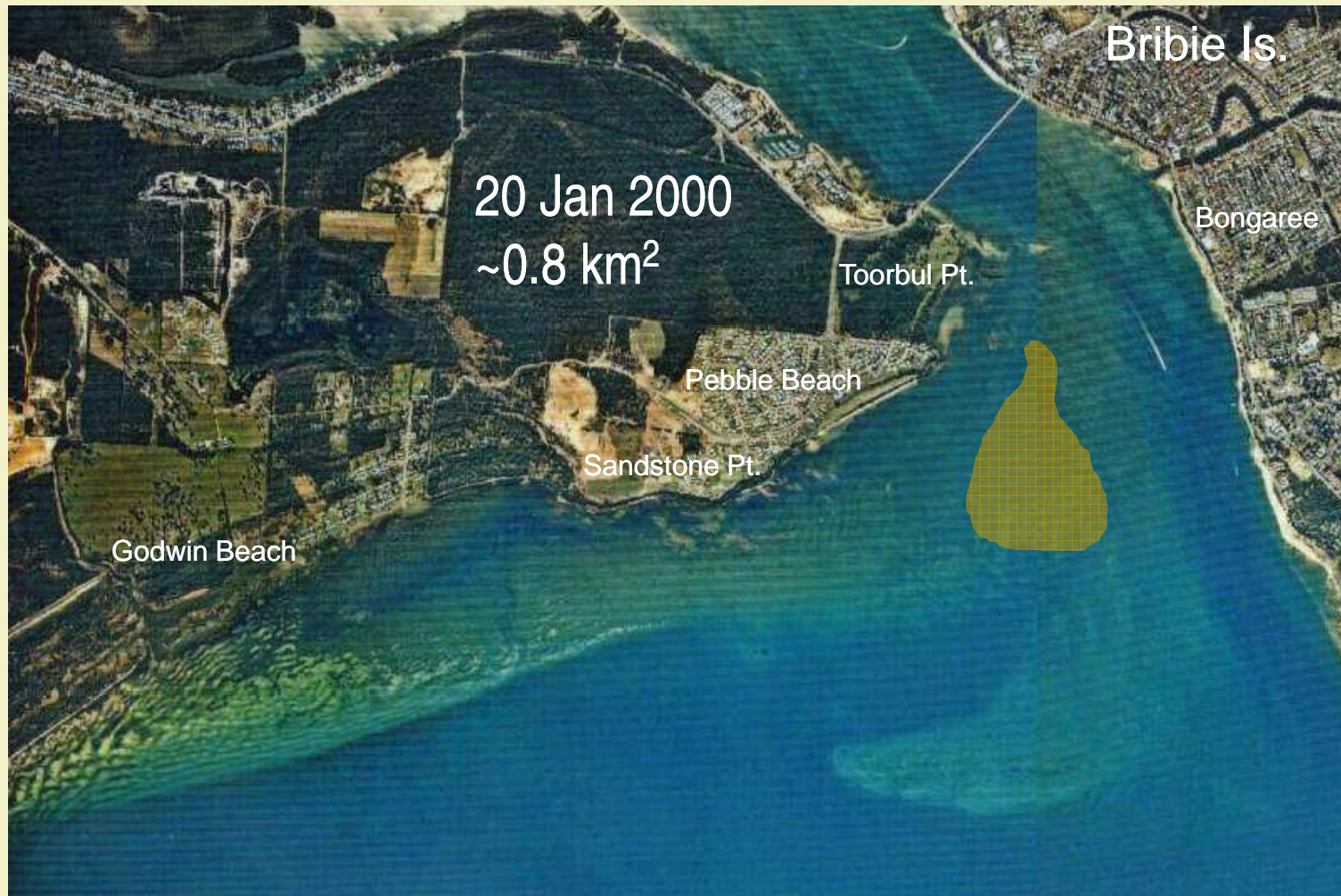


# A map sequence using the 'animation' function can be effective



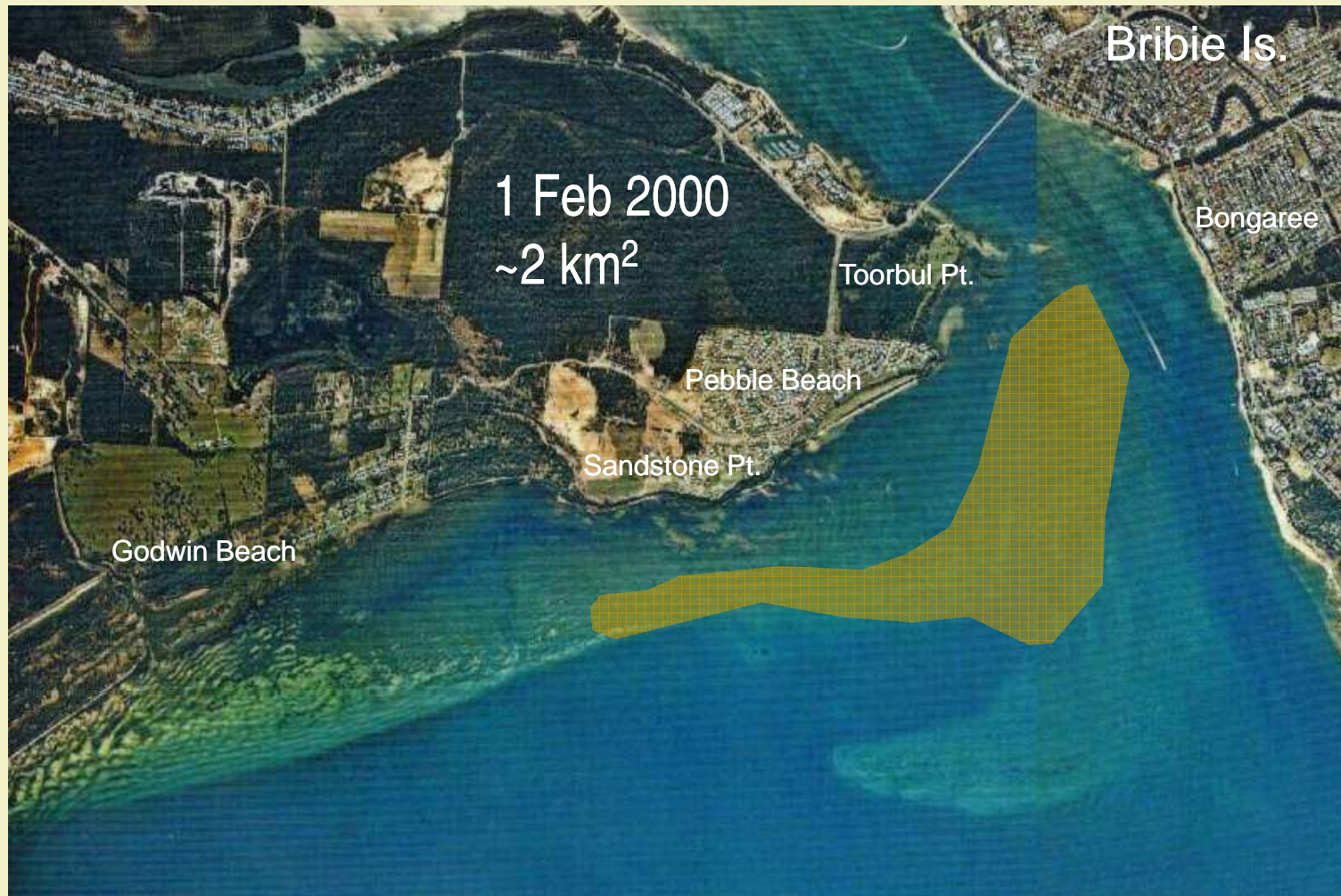


# A map sequence using the 'animation' function can be effective





# A map sequence using the 'animation' function can be effective



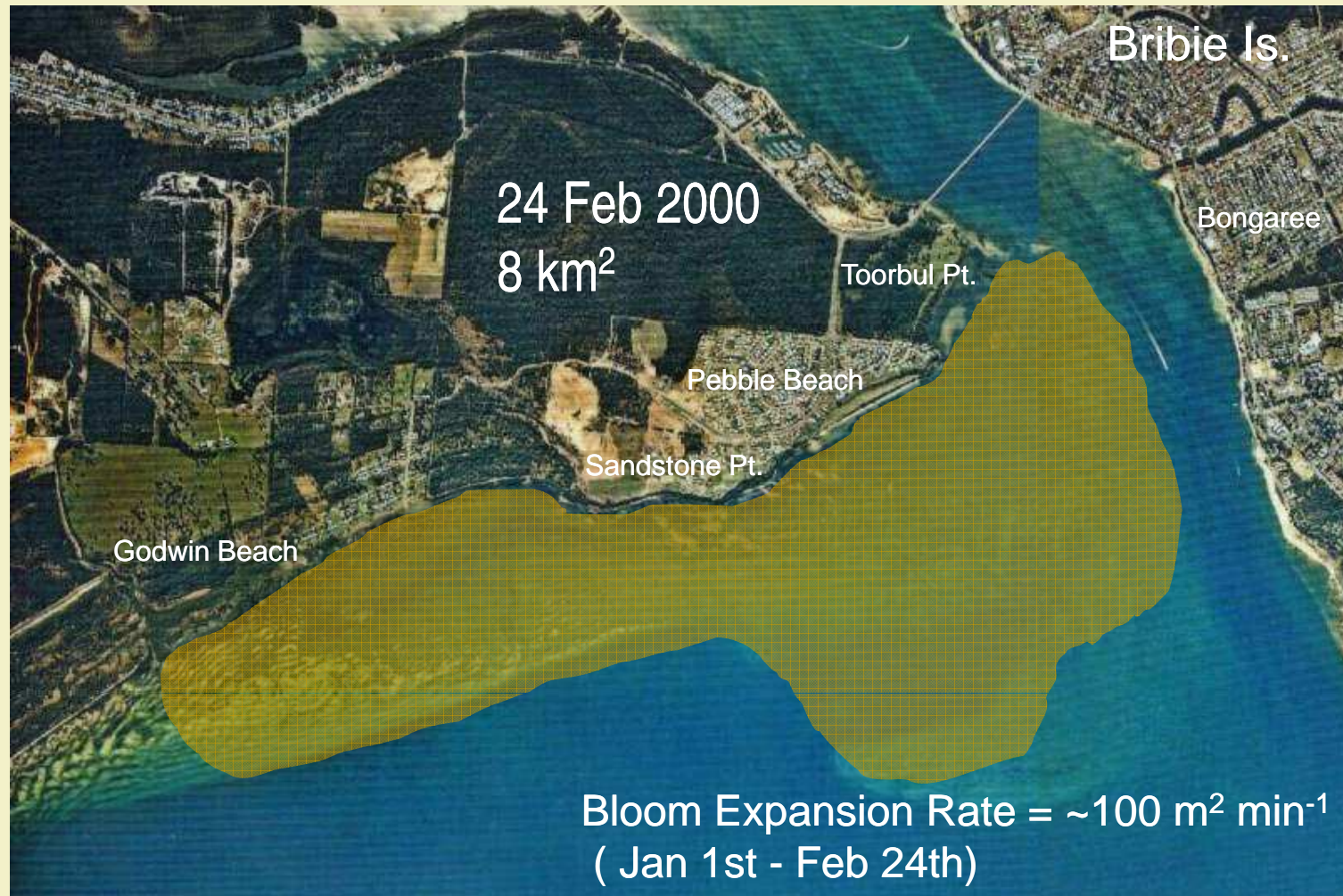


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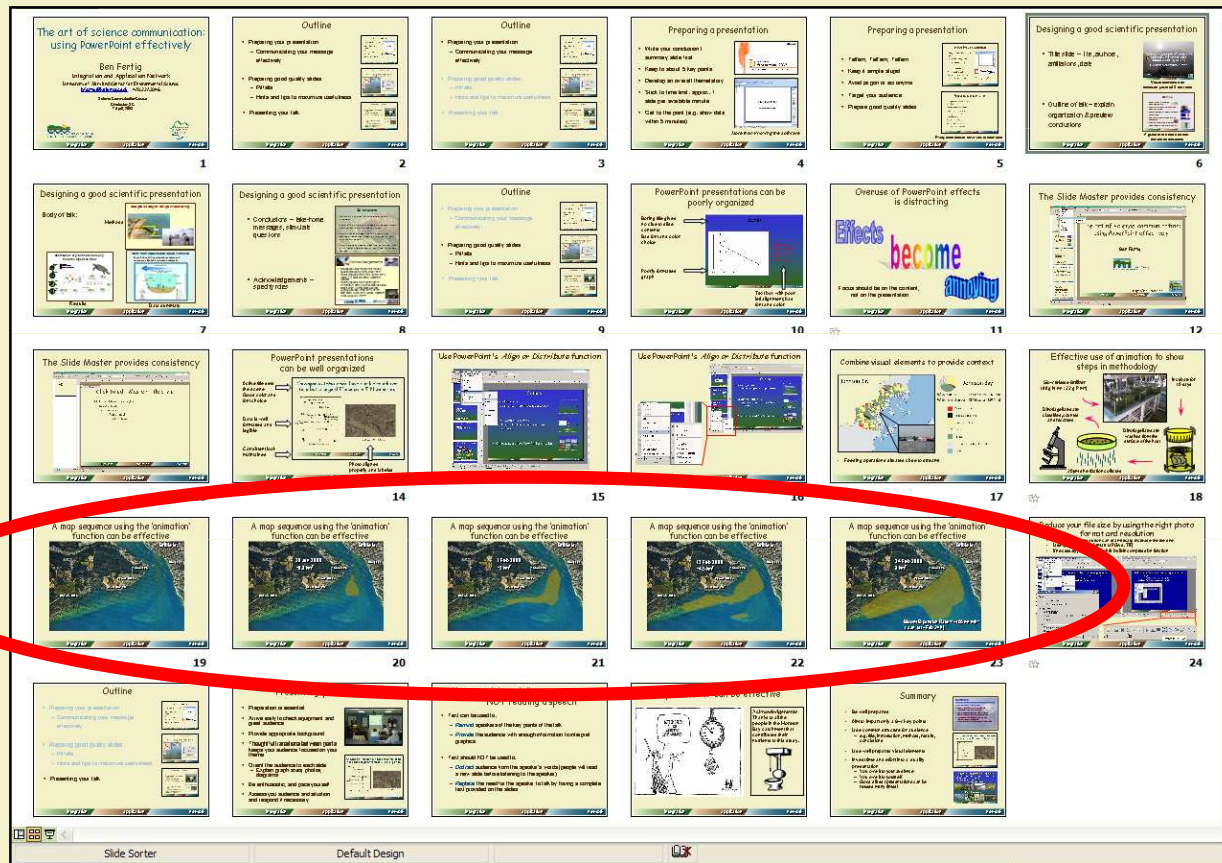




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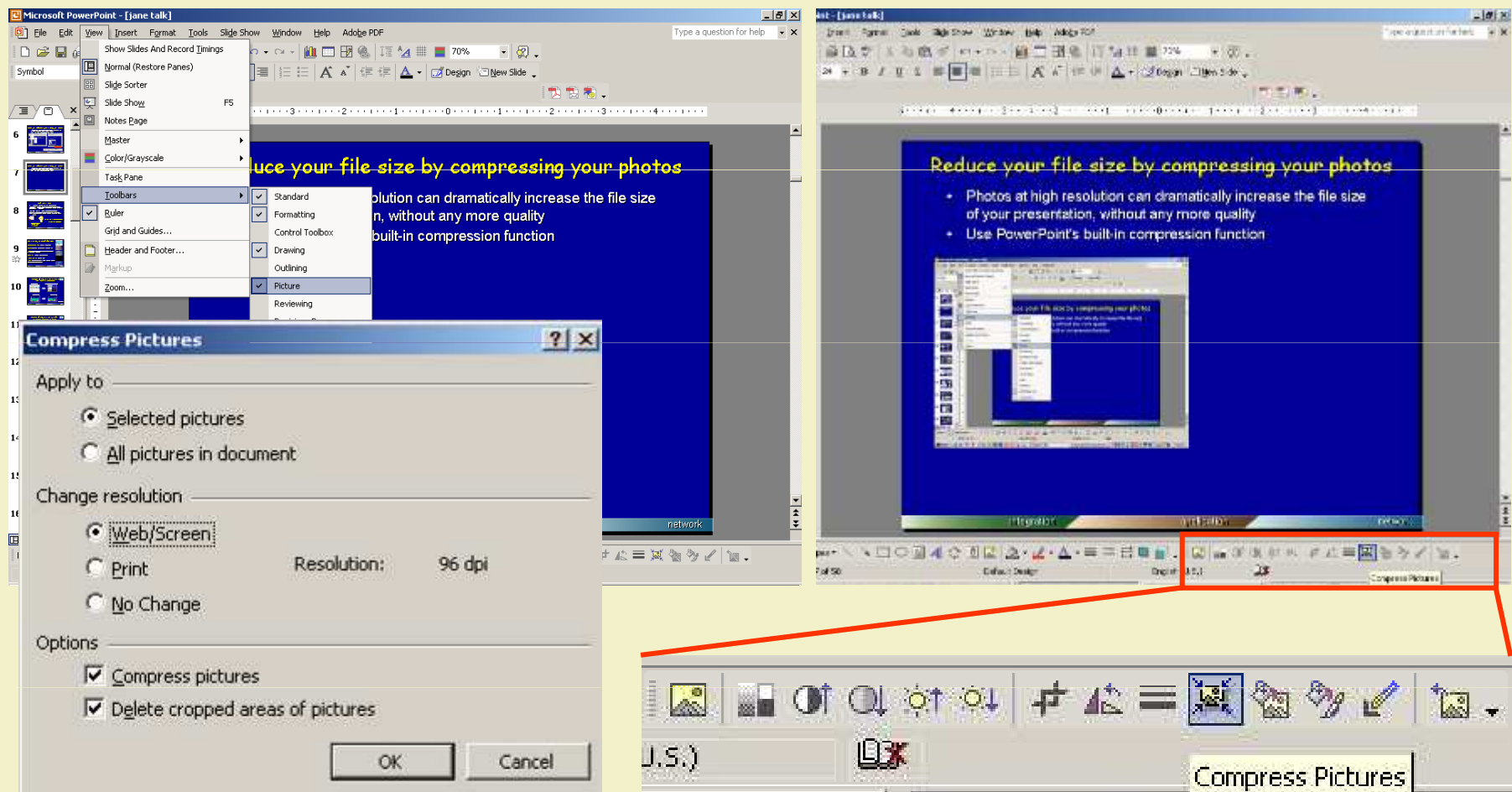
## Builds can be created using multiple slides





# Reduce your file size by using the right photo format and resolution

- Photos at high resolution can dramatically increase the file size
- Use appropriate file formats (JPG vs. TIF)
- If necessary, use PowerPoint's built-in compression function



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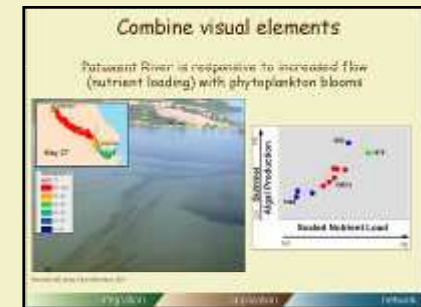
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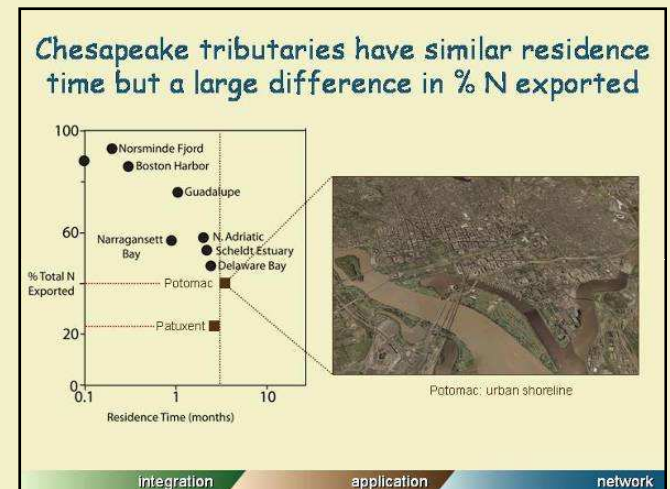


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- Be enthusiastic, and pace yourself
- Assess your audience and situation and respond if necessary



# You are giving a talk, NOT reading a speech

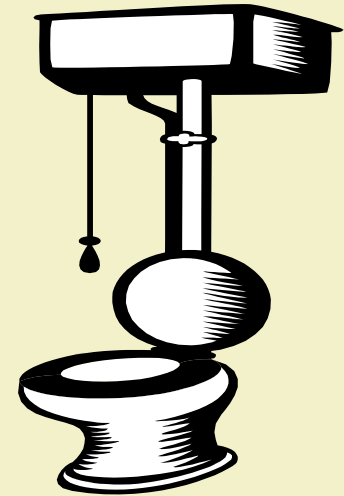
- Text can be used to:
  - *Remind* speakers of the key points of the talk
  - *Provide* the audience with enough information to interpret graphics
- Text should NOT be used to:
  - *Distract* audience from the speaker's words (people will read a new slide before listening to the speaker)
  - *Replace* the need for the speaker to talk by having a complete text provided on the slides

# Topical humor can be effective



## Acknowledgements

Thanks to all the people in the Moreton Bay catchment that contributed their nutrients to this study.



# Summary

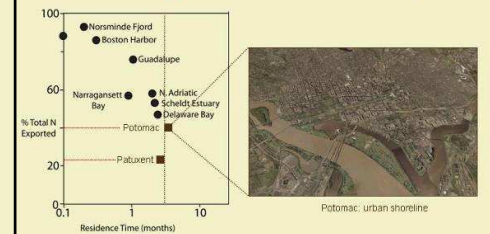
- Be well prepared
- Aim to impart only a few key points
- Use common structure for audience
  - e.g. title, introduction, methods, results, conclusions
- Use well prepared visual elements
- Invest time and effort into a quality presentation
  - You owe it to your audience
  - You owe it to yourself
  - Good slides / presentations can be reused many times!

## Summary

### *Trichodesmium* blooms:

- Have a significant impact on both inorganic & organic nutrients
- Can cause composition shifts in both phyto and zooplankton communities
- Increases in dinoflagellates may be related to DON exudation
- Direct implications for oceanic food webs

### Chesapeake tributaries have similar residence time but a large difference in % N exported



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### What is "ecosystem health"?

- Key processes operate to maintain stable & sustainable ecosystems
- Zones of human impacts do not expand
- Critical habitats remain intact

#### Healthy ecosystem



#### Unhealthy ecosystem



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